

REMARKS

Claims 1-2, 7 and 9 are pending in this application. Claim 1 is in independent form. By this Amendment, claim 1 is amended. No new matter is added.

Rejections Under 35 U.S.C. §112

Claims 1, 2, 7 and 9 are rejected under 35 U.S.C. §112, first paragraph, for allegedly failing to comply with the written description requirement. The rejection is respectfully traversed.

Specifically, it is alleged that there is no literal or clear support for “approximately 0.5” microns or for “less than 140,000 per 0.5 ml” in the specification.

Although claim 1 is amended to remove the word “approximately” Applicants submit that one of ordinary skill in the art would readily recognize that the measured diameter of such particles in suspension is not an exact measurement of the diameter of every particle in suspension and therefore the term “approximately” would readily be recognized by one of skill in the art as accurately describing the measured diameter of such particles.

Regarding the allegation that there is no support for less than 140,000 per 0.5 ml, Applicants respectfully refer the Examiner to Table 1 of the specification showing example embodiments having less than 140,000 particles per 0.5 ml. Accordingly, withdrawal of the rejection is respectfully requested.

Rejections Under 35 U.S.C. §103

Claims 1, 2, 7 and 9 stand rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 6,248,144 to Tamai in view of U.S. Patent Publication No. 2002-0033382 to Kaufman. The rejection is respectfully traversed.

In spite of the Examiner's agreement during the interview conducted on September 16, 2008, that the claims as amended in the October 20, 2008, Amendment would distinguish over the references of record, the claims are again rejected over a number of the same references. However, as previously agreed, the combination of Kaufman and Tamai fail to disclose the features as claimed.

Tamai relates to a process for producing a polishing composition suitable for planarization in the production of semiconductor devices (column 1, lines 4-8). The process in Tamai includes using fumed silica having a bulk density of at least 70 grams per liter that is easily dispersed in water. The fumed silica in the polishing composition is disclosed as containing not more than 500,000 per 0.1 ml of agglomerates not smaller than 0.5 μm , when it is newly produced" (i.e., polishing composition containing not more than 2,500,000 per 0.5 ml of agglomerates having a diameter of <0.5 μm) (col. 3, lines 28-32).

It is alleged in the Office Action that the polishing composition of Tami corresponds to the claimed polishing composition having coarse particles of 0.5 μm in diameter and the number of coarse particles being no more than 140,000 particles per 0.5 ml.

Applicants first point out that the number of agglomerates not smaller than 0.5 μm (<0.5 μm) is 2,500,000/0.5 ml. is not less than 140,000 particles per 0.5 ml. Further, Tamai discloses in Table 1 that the average actual particle size is actually 0.132 μm to 0.152 μm in the noted volume of polishing composition. For example, the number of particles having a diameter of 0.132 μm is 1,740,000/0.5 ml and the number of particles having a diameter of 0.152 μm is 1,785,000/0.5 ml. Thus, Tamai fails to disclose or suggest polishing composition having coarse particles of 0.5 μm in diameter and the number of coarse particles being no more than 140,000

particles per 0.5 ml. Therefore, Tamai fails to disclose the result effective variable as claimed. Accordingly, the disclosure of Tamai fails to render the rejected claims obvious.

Additionally, it is admitted in the Office Action that Tamai fails to disclose or suggest at least one additive selected from a polishing accelerator, an oxidant, an organic acid, a complexing agent, a corrosion inhibitor and a surfactant. It is alleged that “the skilled artisan would have appreciated and thus found it obvious to add any one of the claimed additives.” However, it is never appropriate to rely solely on common knowledge in the art without evidentiary support in the record, as the principal evidence upon which a rejection was based (MPEP §2144.03). Deficiencies of the cited references cannot be remedied by general conclusions about what is ‘basic knowledge,’ ‘well known,’ or ‘common sense.’ *In re Zurko*, 258, F3d 1379, 1385, 59 USPQ2d 1653, 1697 (Fed. Cir. 2001). Reference to ‘common knowledge’ “does not in and of itself make it so” absent evidence of such knowledge. *Smith Industries Medical Systems, Inc. v. Vital Signs, Inc.*, 183 F.3d 1347, 1356, 51 USPQ2d 1415, 1421 (Fed. Cir. 1999).

Because Kaufman is not applied in the rejection of the claims, Kaufman is not discussed in connection with this rejection. However, an analysis of claim rejections in view of Kaufman is discussed below.

As the combination of references fail to render the rejected claims obvious. Withdrawal of the rejection is respectfully requested.

Claims 1, 2, 7 and 9 also stand rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent Publication No. 2002-0033382 to Kaufman in view of U.S. Patent No. 6,248,144 to Tamai. The rejection is respectfully traversed.

Kaufman relates to a polishing slurry for mechanical polishing (paragraph [0002]). The slurry includes an abrasive, at least one oxidizer, a complexing agent and a film forming agent. The abrasive may be a metal oxide abrasive, selected from the group including alumina, titania, zirconia, germania, silica, ceria and mixtures thereof (paragraph [0034]). The metal oxide abrasive consists of metal oxide aggregates having a size distribution less than about 1 micron and a mean aggregate diameter less than about 0.4 microns. The metal oxide abrasive may consist of discrete, individual metal oxide particles having a primary particle diameter less than 0.4 microns (400 nm) (paragraphs [0038]-[0039]).

Thus, according to the description of Kaufman, the particle diameter is of a primary particle and not an agglomerated particle. Kaufman also discloses that the metal oxide abrasive consists of...a mean aggregate diameter less than about $0.4\mu\text{m}$ (paragraph [0078]). However, this description of the metal oxide cannot pertain to fumed silica because one of skill in the art did not know the dispersability of particles in the slurry and an explanation of a method of producing a silica slurry is not disclosed in Kaufman.

Further, it is alleged in the Office Action that because "all of the particles are less than" $0.4\mu\text{m}$, "it can be seen that no particles have a size of 0.5 are present, thus reading on the claimed limitation."

Applicants disagree with the allegation that a polishing composition where all of the particles are less than $0.4\mu\text{m}$ in diameter discloses a polishing composition where the number of particles having a diameter of $0.5\mu\text{m}$ is no more than $140,000/0.5\text{ ml}$. By positively claiming "course particles" there must be coarse particles in the polishing composition. By interpreting the claim to have no coarse particles, when such particles are claimed, would render the claimed element meaningless.

As Kaufman fails to disclose or suggest coarse particles of 0.5 µm in diameter, the number of course particles being no more than 140,000/0.5 ml, Kaufman does not render the claims obvious.

Additionally, it is admitted in the Office Action that Kaufman fails to disclose or suggest at least one additive selected from a polishing accelerator, an oxidant, an organic acid, a complexing agent, a corrosion inhibitor and a surfactant. It is alleged that “the skilled artisan would have appreciated and thus found it obvious to add any one of the claimed additives.” However, it is never appropriate to rely solely on common knowledge in the art without evidentiary support in the record, as the principal evidence upon which a rejection was based (MPEP §2144.03). Deficiencies of the cited references cannot be remedied by general conclusions about what is ‘basic knowledge,’ ‘well known,’ or ‘common sense.’ *In re Zurko*, 258, F3d 1379, 1385, 59 USPQ2d 1653, 1697 (Fed. Cir. 2001). Reference to ‘common knowledge’ “does not in and of itself make it so” absent evidence of such knowledge. *Smith Industries Medical Systems, Inc. v. Vital Signs, Inc.*, 183 F.3d 1347, 1356, 51 USPQ2d 1415, 1421 (Fed. Cir. 1999).

Because Tamai is not applied in the rejection of the claims, Tamai is not discussed in connection with this rejection. However, an analysis of claim rejections in view of Tamai is discussed above.

As neither Tamai nor Kaufman, whether considered alone or in combination, disclose or suggest all of the features recited in the rejected claims, as amended, withdrawal of the rejection is respectfully requested.

Claims 1, 2, 7 and 9 stand rejected under 35 U.S.C. §103(a) as being unpatentable over the combination of U.S. Patent Publication No. 2003/0104770 to Pasqualoni, et al. (Pasqualoni) and Tamai. The rejection is respectfully traversed.

It is alleged in the Office Action that Pasqualoni discloses coarse particles of 0.5 μm in diameter, the number of course particles being no more than 140,000/0.5 ml at paragraph [0013]. Paragraph [0013] recites that the “slurry composition has a large particle count of less than about 150,000 particles having a particles size greater than 0.5 μm in 30 μl of slurry.”

However, 150,000 particles/30 μl equals 2,500,000 particles/0.5 ml. Thus, Pasqualoni fails to disclose or suggest the number of particles having a diameter of 0.5 μm being no more than 140,000/0.5 ml.

As discussed above, Tamai also fails to disclose or suggest coarse particles of 0.5 μm in diameter, the number of course particles being no more than 140,000/0.5 ml. Accordingly, withdrawal of the rejection is respectfully requested.

Claims 1, 2, 7 and 9 stand rejected under 35 U.S.C. §103(a) as being obvious over either the combination of Tamai and Kaufman or the combination of Tamai and Pasqualoni. The rejection is respectfully traversed.

As discussed above, none of Tamai, Kaufman or Pasqualoni, whether considered alone or in combination, disclose or suggest coarse particles of 0.5 μm in diameter, the number of course particles being no more than 140,000/0.5 ml. Accordingly, withdrawal of the rejection is respectfully requested.

CONCLUSION

In view of the above remarks and amendments, Applicants respectfully submit that each of the rejections has been addressed and overcome, placing the present application in condition for allowance. A notice to that effect is respectfully requested. If the Examiner believes that personal communication will expedite prosecution of this application, the Examiner is invited to contact the undersigned.

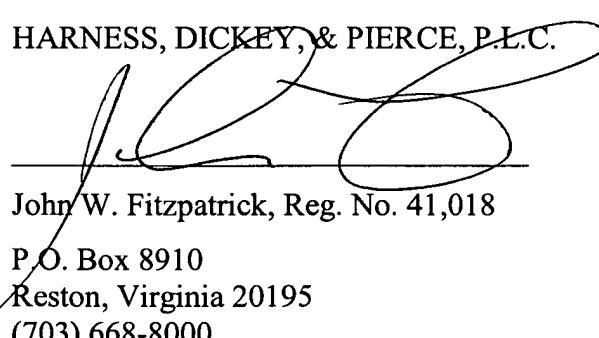
Should there be any outstanding matters that need to be resolved in the present application, the Examiner is respectfully requested to contact John W. Fitzpatrick at the telephone number of the undersigned below.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 08-0750 for any additional fees required under 37 C.F.R. § 1.16 or under 37 C.F.R. § 1.17; particularly, extension of time fees.

Respectfully submitted,

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By


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